

RIVERS AND FLOODS

By R. E. SPENCER

No floods of importance occurred during October, 1928. In the Atlantic drainage, the high stages were mainly continuations of the August-September floods previously reported upon, and were attended by no additional damage.

Because of frequent previous floods this summer along the Grand River of Missouri, no crops remained to be damaged by the rise of October 18-20 in that stream; and it had no other consequence except some slight inconvenience to transportation.

[All dates in October except as otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC DRAINAGE					
Connecticut: Bellows Falls, Vt.	<i>Feet</i> 12	(1) 21 29	18 24 (2) 29	<i>Feet</i> 13.0 12.8 12.8	2 and 10. 22. 31.
Tar: Greenville, N. C.	14	(1)	(3)		
Waccanaw: Conway, S. C.	7	(1)	11	13.4	Sept. 30.
Peedee: Mars Bluff, S. C.	17	(1)	6	29.6	Sept. 23.
Santee:					
Rimini, S. C.	12	(1)	13	30.4	Aug. 21.
Ferguson, S. C.	12	(1)	15	20.6	Aug. 22.
Saluda: Three Miles Post (near Colum- bia), S. C.	8	5 18	6 20	12.1 16.75	5. 19.
Altamaha: Everett City, Ga.	10	(1)	1	15.0	Aug. 27-28.
MISSISSIPPI DRAINAGE					
Tippecanoe: Norway, Ind.	6	29	29	6.0	29.
Elk: Fayetteville, Tenn.	14	18	18	20.4	18.
Grand:					
Gallatin, Mo.	20	18	19	25.4	18.
Chillicothe, Mo.	18	18	20	23.7	19.

¹ Continued from last month.

² Continued at end of month.

³ Below flood stage at 8 a. m., Oct. 1, 1928.

MEAN LAKE LEVELS DURING OCTOBER, 1928

By UNITED STATES LAKE SURVEY

[Detroit, Mich., November 5, 1928]

The following data are reported in the "Notice to Mariners" of the above date:

Data	Lakes ¹			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during October, 1928:				
Above mean sea level at New York.	<i>Feet</i> 603.55	<i>Feet</i> 580.45	<i>Feet</i> 551.86	<i>Feet</i> 245.76
Above or below—				
Mean stage of September, 1928.	+0.15	+0.03	-0.26	-0.41
Mean stage of October, 1927.	+0.91	+1.33	+0.52	+0.77
Average stage for October, last 10 years.	+1.37	+0.83	+0.16	+0.49
Highest recorded October stage.	-0.09	-2.59	-1.84	-2.05
Lowest recorded October stage.	+2.16	+2.54	+1.26	+2.09
Average departure (since 1860) of the October level from the September level.	-0.05	-0.23	-0.31	-0.34

¹ Lake St. Clair's level: In October, 1928, 575.02 feet.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, OCTOBER, 1928

By J. B. KINCER

General summary.—During the first decade, except where plowing and fall seeding were retarded by dry soil, the weather was mostly favorable for seasonal farm operations and good progress was reported quite generally. The prevailing warmth and much sunshine were espe-

cially helpful in drying out the corn crop, for harvesting operations, picking cotton, and for fall plowing and seeding wherever the soil moisture was sufficient. There were no damaging frosts, but additional reports of harm to some late crops—mostly minor—by frosts of the preceding month were received from some of the Northern States.

The second decade was warm over the eastern half of the country and, although the prevailing weather had some unfavorable aspects, conditions were generally favorable. Little or no harm was reported from low temperatures, although freezing weather extended south to extreme northwestern Oklahoma and northern New Mexico, with light frost in parts of northern Texas. The geographic distribution of rainfall was mostly favorable; in the upper Mississippi Valley, the Lake region, and the Northeast, showers delayed field work, but were otherwise helpful, while in the central valley States further rains were very beneficial with the drought largely relieved.

During the last decade rain hindered outdoor operations to some extent in the Lake region and the Northeast; otherwise field work made good advance until near the close of the month, when widespread rains in the Southwest stopped outside operations. The first general freezing weather of the season overspread the Eastern States as far south as southern Virginia and in the West to portions of Oklahoma, but little damage resulted.

Small grains.—During the first decade moderate to generous showers in the central and eastern portions of the Winter Wheat Belt were very beneficial in conditioning the soil for seeding and for germination of the grain already sown, but in western parts more moisture was needed, with seeding suspended in western Kansas and delayed in Oklahoma. Conditions continued favorable in Atlantic coast sections and the outlook was improved by generous rains in the Pacific Northwest.

During the second decade the dry conditions were generally relieved, but over the western half of the belt it was still unfavorably dry in some districts. Missouri, Iowa, Kansas, and Nebraska were well supplied with soil moisture as a result of the rains, but in parts of the Southwest it continued dry. Unfavorable drought continued in the Pacific Northwest, but in the Atlantic Coast States conditions were generally satisfactory.

During the last decade rains in the southwestern Wheat Belt were of much benefit, especially in breaking the drought in western Oklahoma and northern Texas. The main producing area had sufficient moisture rather generally, with this relief, and the crop was making favorable advance. The Pacific Northwest continued droughty, but in the Atlantic area satisfactory conditions prevailed.

Corn.—During the first decade the warm, dry, sunny weather over the main producing sections made generally excellent conditions for drying out the corn crop. Rapid drying was reported in the Ohio Valley and in Iowa, with cribbing begun in many counties of the latter and hogging active. The crop was all made and being cribbed in Missouri, while in the Great Plains it was drying rapidly, with cribbing begun in Kansas.

During the second decade corn dried out rapidly in the eastern Ohio Valley and husking advanced well, but in the western part there was some delay by wet weather. In Iowa heavy rains interrupted husking; some corn was fit to crib, but mostly for immediate use only; high winds caused much down corn with husking difficult and many ears molding or sprouting. In the Great Plains and Missouri harvesting made good advance.

Corn husking made rapid progress in the Ohio Valley during the last decade and considerable shredding was accomplished. In Iowa husking varied from scarcely begun to half done; the feeding value and general quality of the crop were reported the best for several years, but it was mostly too wet for cribbing in the extreme eastern and southern portions. Husking advanced in the Great Plains, with cribbing beginning in Kansas and being general in Missouri.

Cotton.—During the first decade in the Atlantic States the warmth and sunshine were favorable and cotton opened rapidly, with picking and ginning advancing well. In the central States of the belt conditions favored rapid opening and also harvesting, except for considerable rain in places, principally in Arkansas. In Oklahoma warmth and persistent dryness made a continuation of unfavorable conditions in the west, but the bulk was open and being picked rapidly. In Texas progress was poor in the northwest, with premature opening, but the crop was mostly made elsewhere, with top-crop conditions poor; the weather favored picking.

During the second decade frequent rains caused considerable delay to cotton picking east of the Mississippi River, except in Atlantic coast areas where generally good advance was reported. There was also some interruption in Louisiana, but very good advance was reported from Arkansas. In Oklahoma cotton was mostly open and picking advanced rapidly, while in Texas the

crop was mostly out in southern and central portions and fair to good progress was reported from the Northwest.

During the last decade fair weather favored picking and ginning over the eastern belt, but toward the close of the month rains interrupted this work in the northwestern, but gathering was well along in all sections. Some cotton in northwestern Texas was blown out by high winds and local harm to staple was reported in the central-northern portions of the belt.

Miscellaneous crops.—Pastures were fair to good east of the Appalachian Mountains, but to the westward there was a rather general need of moisture most of the month. Rains were of some benefit in parts of the upper Mississippi Valley, while showers were helpful in the central Rocky Mountain region and the Southwest. It continued generally unfavorably dry in the Great Basin and rather generally in Pacific coast sections. Livestock held up well, however, although large numbers were on feed in the Great Basin.

Potato digging progressed during the month and was practically completed at the close. Truck crops made mostly satisfactory advance, although killing frosts damaged some late truck in Middle Atlantic States during the latter part. Sugar-cane conditions continued excellent in Louisiana and sugar-beet digging progressed well. Cool weather at the close improved citrus in Florida and hastened coloring; citrus did well in California.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

NORTH ATLANTIC OCEAN

By F. A. YOUNG

The weather conditions were exceptionally severe over the middle and eastern sections of the North Atlantic. West of the fiftieth meridian the number of days with gales was somewhat below the normal and along the American coast moderate conditions prevailed with the exception of a few disturbances that will be referred to later.

Charts VIII to XII show the conditions from the 11th to 15th, inclusive, during the flight of the German airship *Graf Zeppelin*, which left Germany on the 11th for the United States.

The number of days with fog, judging from reports received, was considerably below the normal over the Grand Banks, the greater part of the steamer lanes and off the European coast, while not far from normal along the American coast between Hatteras and Newfoundland.

On the 1st a disturbance was central near 41° N., 51° W., that moved rapidly eastward, reaching its greatest extent and intensity on the 3d when near 52° N., 30° W. On that date the storm area extended over the northern steamer lanes from the fifteenth to the fortieth meridians and vessels in the southwesterly quadrants reported northwesterly gales of force 11 and 12 at the time of observation. By the 4th this disturbance had diminished somewhat in force, although whole westerly gales still prevailed over a considerable area; by the 5th it was off the west coast of Ireland, with moderate conditions near the center, although southerly gales were reported from the vicinity of the Azores. On the 5th there was a second Low central near 45° N., 45° W., that also became dangerous as it traveled eastward, and from the 6th until the 11th a succession of severe gales prevailed over portions of the middle and eastern sections of the steamer lanes.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian), North Atlantic Ocean, October, 1928

Stations	Average pressure	Departure ¹	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Julianehaab, Greenland.....	29.61	(?)	30.08	29th.....	29.10	16th.
Belle Isle, Newfoundland.....	29.77	-0.10	30.20	28th.....	29.16	15th.
Halifax, Nova Scotia.....	30.07	+0.07	30.58	31st.....	29.48	25th.
Nantucket.....	30.12	+0.10	30.54	31st.....	29.52	24th.
Hatteras.....	30.16	+0.13	30.44	30th.....	29.74	24th.
Key West.....	30.00	+0.02	30.14	26th ²	29.92	1st. ³
New Orleans.....	30.08	+0.07	30.30	26th.....	29.90	1st. ³
Cape Gracias, Nicaragua.....	29.86	-0.04	29.90	20th ²	29.78	24th.
Turks Island.....	30.02	+0.07	30.08	26th.....	29.96	4th. ³
Bermuda.....	30.18	+0.16	30.36	25th.....	29.88	1st.
Horta, Azores.....	30.28	+0.16	30.56	25th.....	29.92	3d.
Lerwick, Shetland Islands.....	29.63	-0.16	30.20	3d ²	28.46	20th.
Valencia, Ireland.....	29.74	-0.17	30.29	1st.....	28.11	26th.
London.....	29.85	-0.06	30.30	3d.....	29.28	27th.

¹ From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon or 7 a. m. seventy-fifth meridian.

² No normal available.

³ And on other dates.

⁴ Average of 27 observations.

On the 10th a disturbance of tropical origin was somewhere in the vicinity of 22° N., 37° W., as indicated by the storm report from the Dutch S. S. *Prins Frederik Hendrik*. Unfortunately, this is an unfrequented part of the ocean and so few reports have been received that it has been difficult to trace its track accurately until the 14th, the position on that date being shown on Chart XI. It was on the 14th that the American tanker *David C. Reid* foundered, her approximate position being given in an SOS as 37° N., 38° W., apparently not far from the center of the disturbance just referred to.

From the 17th to 21st the middle and eastern sections of the steamer lanes were again swept by a succession of gales that reached their greatest intensity on the 19th. On the 21st a Low was central off the south coast of Newfoundland that moved eastward, increasing in inten-